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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,785	10/23/2003	Tatsuya Sugawara	15682-004001	7171

26211 7590 04/17/2007  
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EXAMINER
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RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/691,785

Applicant(s)

SUGAWARA ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3,5,8 and 9 is/are allowed.
- 6) ☒ Claim(s) 10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

The amendment filed on 1/31/2007 cancels claims 2, 4, 6 and 7. Claims 8-11 are added.

### ***Claim Rejections - 35 USC § 102***

The rejection of claims 1-3 under 35 U.S.C. 102(e) as being anticipated by Kashiwagi (US 2002/0136942 and 6,800,390) has been overcome by applicant's amendment to the claims.

The rejection of claims 1-7 under 35 U.S.C. 102(e) as being anticipated by Sugawara (US 2003/0148167) has been overcome by applicant's amendment to the claims and by the submission of a certified translation of the priority document of record.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The rejection of claims 4-7 under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi (US 2002/0136942 and 6,800,390) in view of Sugawara (US 2003/0148167) has been overcome by applicant's amendment to the claims and by the submission of a certified translation of the priority document of record.

Claims 10-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi (US 2002/0136942 and 6,800,390) in view of Abe et al. (US 6,815,103.)

Kashiwagi (US 2002/0136942 and 6,800,390) teach a fuel cell system comprising a fuel cell which generates electric power based on hydrogen and a oxidant gas supplied from the outside; a hydrogen gas supply flow path for supplying hydrogen to the fuel cell; a hydrogen off-gas circulating passage for returning the hydrogen off gas from said fuel cell to said hydrogen gas supply flow path; a hydrogen pump for boosting the hydrogen off gas mounted in said hydrogen off gas passage; a hydrogen off gas bypass passage for returning the hydrogen off gas in the hydrogen off gas passage to said hydrogen gas supply flow path; an ejector for sending the hydrogen off gas to the hydrogen gas supply flow path (see figure 1, claims 1-5 and paragraphs 17-28.) The passage includes a pump that prevents back pass of the flow of hydrogen.

Kashiwagi (US 2002/0136942 and 6,800,390) does not teach a check valve in the hydrogen off gas bypass passage. Abe et al. (US 6,815,103) teaches a fuel cell system comprising a fuel cell which generates electric power based on hydrogen and a oxidant gas supplied from the outside; a hydrogen gas supply flow path for supplying hydrogen to the fuel cell; a hydrogen off-gas circulating passage for returning the hydrogen off gas from said fuel cell to said hydrogen gas supply flow path; and an ejector for sending the hydrogen off gas to the hydrogen gas supply flow path (see figures 1-2, claims 1-9 and col. 4, lines 55-65.) The passage includes check valves that prevent back pass of the flow of hydrogen. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include check valves as taught in Abe in the fuel cell of Kashiwagi in order to prevent the back flow of the exhaust through the

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flow path. The check valve allows flow from the hydrogen exhaust to the ejector, but does not permit back flow from the ejector.

***Allowable Subject Matter***

Claims 1, 3, 5, 8 and 9 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a fuel cell system comprising a fuel cell which generates electric power based on hydrogen and a oxidant gas supplied from the outside; a hydrogen gas supply flow path for supplying hydrogen to the fuel cell; a hydrogen off-gas circulating passage for returning the hydrogen off gas from said fuel cell to said hydrogen gas supply flow path; a hydrogen pump for boosting the hydrogen off gas mounted in said hydrogen off gas passage; a hydrogen off gas bypass passage for returning the hydrogen off gas in the hydrogen off gas passage to said hydrogen gas supply flow path; an ejector for sending the hydrogen off gas to the hydrogen gas supply flow path. A back flow check device is provided at said hydrogen off-gas bypass passage for checking back flow of the hydrogen off-gas, and wherein the back flow check device is an isolation valve, which is controlled in response to the driving state of said hydrogen pump OR controlled to be in a closed state when an outside temperature is above a predetermined temperature and which is controlled to be in an open state when the outside temperature is below a predetermine temperature. Control of the valve of claim 1 requires that the valve and the state of the hydrogen pump are in communication as described in the specification. In claim 8, control of the valve requires that the valve and the measured outside temperature are in communication as described in the specification. The use of the valve

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requires that these elements are structurally in communication. The prior art does not teach said fuel cell, as claimed, that includes an isolation valve that is controlled in response to the driving state of said hydrogen pump OR controlled to be in a closed state when an outside temperature is above a predetermined temperature and which is controlled to be in an open state when the outside temperature is below a predetermine temperature.

The most pertinent prior art has been presented. For example, Kashiwagi (US 2002/0136942 and 6,800,390) teach a fuel cell system comprising a fuel cell which generates electric power based on hydrogen and a oxidant gas supplied from the outside; a hydrogen gas supply flow path for supplying hydrogen to the fuel cell; a hydrogen off-gas circulating passage for returning the hydrogen off gas from said fuel cell to said hydrogen gas supply flow path; a hydrogen pump for boosting the hydrogen off gas mounted in said hydrogen off gas passage; a hydrogen off gas bypass passage for returning the hydrogen off gas in the hydrogen off gas passage to said hydrogen gas supply flow path; an ejector for sending the hydrogen off gas to the hydrogen gas supply flow path (see figure 1, claims 1-5 and paragraphs 17-28.) The passage includes a pump that prevents back pass of the flow of hydrogen. The reference does not teach said fuel cell, as claimed, that includes an isolation valve that is controlled in response to the driving state of said hydrogen pump OR controlled to be in a closed state when an outside temperature is above a predetermined temperature and which is controlled to be in an open state when the outside temperature is below a predetermine temperature. For these reasons, the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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4.14.2007